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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/761,762

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Janet Bee Yin Chua

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06/29/2005

AGILENT TECHNOLOGIES, INC.

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EXAMINER

RICHARDS, N DREW

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/761,762	Applicant(s) CHUA ET AL	
	Examiner N. Drew Richards	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-10, 12-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 4, 11 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5-9, 12-16, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsubara et al. (US 2003/0008431 A1).

Matsubara et al. disclose a device for emitting output light and a method for emitting output light in figures 1-11B and on pages 1-6. With regard to claim 1, Matsubara et al. disclose a device comprising:

a semiconductor chip 2 that emits first light of a first peak wavelength in a 481-520 nm range (paragraph [0009]; the epitaxial light emission structure is disclosed as emitting light at a wavelength from 460-510 nm for blue or blue-green color and thus its peak wavelength is in a 481-520 nm range; the epitaxial light emitting structure is considered the "semiconductor chip"); and

a wavelength-shifting region 1 optically coupled to the semiconductor chip 2 to receive the first light, the wavelength-shifting region including Group IIB element Selenide-based phosphor material having a property to convert some of the first light to a second light of a second peak wavelength in a red wavelength range (paragraph [0010], the ZnSe substrate absorbs the light emitted from the light source 2 and emits

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red light; the substrate is ZnSe which is a Group IIB element Selenide-based phosphor material);

the group IIB element Selenide-based phosphor material including Group IIB element Selenide activated by at least one element selected from a group consisting of copper, chlorine, fluorine, bromine and silver (paragraph [0008]);

the first light and the second light being components of the output light (paragraph [0010]).

With regard to claim 2, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (paragraph [0010]).

With regard to claim 5, the semiconductor chip is a light emitting diode (LED) that can generate the first light of the first peak wavelength (paragraph [0009]; the light emission structure is disclosed as being a high bright LED emitting light at a wavelength from 460-510 nm).

With regard to claim 6, the wavelength-shifting region is a part of a lamp coupled to the semiconductor chip (the substrate 1 is coupled to the epitaxial structure 2 together forming a lamp).

With regard to claim 7, the wavelength-shifting region is a lamp coupled to the semiconductor chip (the entire device of figure 1 is considered a lamp as it outputs white light).

With regard to claim 8, Matsubara et al. disclose a device comprising:

a semiconductor die 2 that emits first light of a first peak wavelength in a 481-520 nm range (paragraph [0009]; the epitaxial light emission structure is disclosed as

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emitting light at a wavelength from 460-510 nm for blue or blue-green color and thus it's peak wavelength is in a 481-520 nm range; the epitaxial light emitting structure is considered the "semiconductor die"); and

a phosphor-containing medium 1 positioned to receive the first light, the phosphor-containing medium 1 including Group IIB element Selenide-based phosphor material having a property to convert some of the first light to a second light of a second peak wavelength in a red wavelength range (paragraph [0010], the ZnSe substrate absorbs the light emitted from the light source 2 and emits red light; the substrate is ZnSe which is a Group IIB element Selenide-based phosphor material);

the group IIB element Selenide-based phosphor material including Group IIB element Selenide activated by at least one element selected from a group consisting of copper, chlorine, fluorine, bromine and silver (paragraph [0008]);

the first light and the second light being components of the output light (paragraph [0010]).

With regard to claim 9, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (paragraph [0010]).

With regard to claim 12, the semiconductor die is a light emitting diode (LED) die (paragraph [0009]; the semiconductor die is disclosed as being a high bright LED emitting light at a wavelength from 460-510 nm).

With regard to claim 13, the phosphor-containing medium is a part of a lamp coupled to the semiconductor die (the substrate 1 is coupled to the epitaxial structure 2 together forming a lamp).

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With regard to claim 14, the phosphor-containing medium is a lamp coupled to the semiconductor die (the entire device of figure 1 is considered a lamp as it outputs white light).

With regard to claim 15, Matsubara et al. disclose a method for emitting output light comprising:

generating first light of a first peak wavelength in a 481-520 nm range at a semiconductor die, including emitting the first light out of the semiconductor die (paragraphs [0008] - [0010]; the epitaxial light emission structure provides blue or blue-green light which is disclosed as being from 460-510 nm which is in a 481-520 range; the epitaxial light emission structure 2 is the semiconductor die; the light is emitted out of the die as it is emitted, for example, upwards as E in figure 1 and downwards into the substrate);

receiving the first light emitted out of the semiconductor die 2, including converting some of the first light to second light of a second peak wavelength in a red wavelength range using Group IIB element Selenide-based phosphor material (paragrapy [0010]; the first light emitted toward the substrate is converted to red; the substrate is ZnSe which is a Group IIB element Selenide-based phosphor material); and

the group IIB element Selenide-based phosphor material including Group IIB element Selenide activated by at least one element selected from a group consisting of copper, chlorine, fluorine, bromine and silver (paragraph [0008]);

emitting the first light and the second light as components of the output light (paragraph [0010]).

With regard to claim 16, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (paragraph [0010]).

With regard to claim 19, the generating includes generating the first light of the first peak wavelength at a light emitting diode die (the epitaxial emission structure 2 is an LED and is considered a die).

With regard to claim 20, the light emitting diode die is configured to generate the first light such that the first peak wavelength is within a blue-green region of the visible light spectrum (the LED is disclosed to emit blue-green on column 1 line 64).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubara et al. (US 2003/0008431 A1, hereafter "Matsubara1") as applied to claims 1, 2, 5-9, 12-16, 19 and 20 above, and further in view of Matsubara et al. (U.S. Patent No. 6,509,651 B1, hereafter "Matsubara2", previously cited).

With regard to claims 3, 10 and 17, Matsubara1 fails to teach activating the zinc selenide with copper. Matsubara1 teach activating the zinc selenide with a variety of elements to provide self-activated luminescence having an emission wavelength center in a range of 550 nm to 650 nm (paragraph [0008]). Matsubara1 teach using this doped

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zinc selenide to emit red light (paragraph [0010]). Matsubara2 teach a similar device in figure 5 having an epitaxial light emission structure (including layers 22/23/24) on a zinc selenide substrate. Matsubara2 teach that it was well known in the art to dope the zinc substrate in such a device with copper in order to absorb light of a wavelength shorter than 510 nm and emit light having a wavelength of 630 nm (red light). It would have been obvious to one of ordinary skill in the art to use the known dopant (copper) in a known manner to produce the desired result (absorbing light at 510 nm or below and emitting red light). It is well within the skill of the ordinary artisan to use a known material for its known purpose in a known device.

Allowable Subject Matter

5. Claims 4, 11 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: Prior art of record fails to teach, disclose, or suggest, either alone or in combination, a device or method for outputting light as claimed in these claims wherein the claimed wavelength-shifting region includes cadmium selenide activated by copper chlorine, fluorine, bromine, or silver and outputting light in a red wavelength range.

Response to Arguments

7. Applicant's arguments filed 4/11/05 have been fully considered but they are not persuasive.

Applicant has argued that the epitaxial light structure 2 of Matsubara is part of an LED 5 and is not a "a semiconductor chip" or "a semiconductor die". This is not persuasive as the light emitting structure 2 itself is the LED (light emitting diode), the substrate 1 is not considered part of the LED 2. Further, "semiconductor chip" or "semiconductor die" and the associated language in the claims do not preclude the wavelength-shifting region being integrally part of the same chip or die.

With regard to claim 15, Matsubara et al. is still considered to anticipate this claims as figure 1 clearly shows light being emitted from the "die" 2 into the wavelength-shifting region 1 where some of it is converted to red light.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on Monday-Friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



NDR



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